

Total No. of printed pages = 6

END SEMESTER EXAMINATION – 2020

Semester : 4th

Subject Code : FPT-403

BASICS OF FOOD CHEMISTRY

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Instructions :

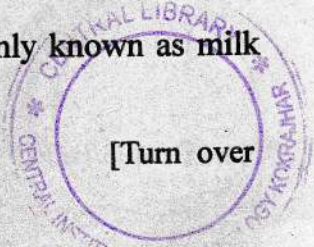
1. *All* questions of PART–A are compulsory.
2. Answer any *five* questions from PART–B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10
 - (a) The process of converting unsaturated fats into saturated fats by addition of hydrogen is called _____.
 - (b) _____ is more commonly known as milk sugar.

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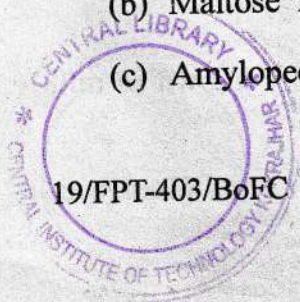
- (c) In aqueous solution, the carboxyl group can lose a proton and amino group can accept a proton, giving rise to a dipolar ion known as _____.
- (d) Tocopherol is the chemical name of vitamin _____.
- (e) D-glucose is also known as _____.
- (f) Maillard reactions generally only begin to occur above _____.
- (g) _____ the primary pigment in plants.
- (h) The number of glycosidic bond in disaccharides is/are _____.
- (i) If $n = 5$, then the formula of carbohydrate is _____.
- (j) An example of Omega 6 fatty acid is _____.

2. Write true or false : 1×10=10

- (a) Oligosaccharides are called sugars.
- (b) Maltose is a reducing sugar.
- (c) Amylopectin is soluble in water.

19/FPT-403/BoFC

(2)



- (d) D-sugars are naturally occurring sugars and body can metabolize only D-sugars.
- (e) Alpha helix is a left-handed coiled rod-like structure.
- (f) Cis-trans isomerism occurs in compounds with double bonds.
- (g) Sucrose is also said to be invert sugar.
- (h) Saturated fatty acids have one or more C=C double bonds.
- (i) Caramelization is a type of enzymatic browning reaction.
- (j) Glucose is the sweetest of all natural sugar types.

3. Choose the correct answer : $1 \times 5 = 5$

- (i) Which of the following is not an antioxidants ?
 - (a) Vitamin A
 - (b) Vitamin C
 - (c) Vitamin E
 - (d) Beta Carotene



(ii) What holds proteins together ?

- (a) Hydrophobic bonds
- (b) Peptide bonds
- (c) Amino acid bonds
- (d) Ester bonds

(iii) Which of the following is correct ?

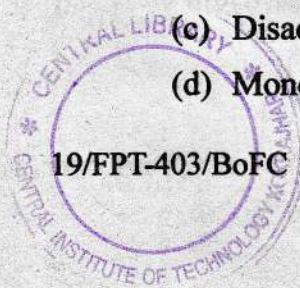
- (a) Sucrose is made up of galactose and glucoses.
- (b) Lactose is made up of glucose and fructose.
- (c) Lactose is made up of galactose and fructose.
- (d) Sucrose is made up of glucose and fructose.

(iv) Amylose contains glucose units

- (a) 100 – 200
- (b) 200 – 300
- (c) 300 – 400
- (d) 500 – 600

(v) Lactose in milk is a

- (a) Polysaccharide
- (b) Trisaccharide
- (c) Disaccharide
- (d) Monosaccharide



PART - B

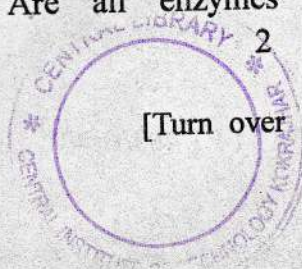
Marks - 45

4. (a) What is Simple sugar? Give examples. 3
(b) What products are formed by hydrolysis of lactose? Is maltose a reducing sugar? 3
(c) Define essential amino acid giving suitable examples. 3
5. (a) What are D and L isomers? Draw the structure of D-glyceraldehyde. 3
(b) Why are vitamin A and vitamin C essential to us? Give their important sources. 4
(c) Explain how peptide bond are formed. 2
6. (a) Classify the following into monosaccharides and disaccharides :
Ribose, 2-deoxyribose, maltose, galactose, fructose and lactose. 3
(b) Explain the difference between monounsaturated and a polyunsaturated fat? 4
(c) What are Enzymes? Are all enzymes protein? 2

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(5)

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7. (a) Define the following terms (any *five*):
2×5=10
- (a) Rancidity (b) Melanoidin
(c) MCFA (d) N-terminal
(e) Stereoisomer (f) Glycosidic bond
8. (a) What are intentional food additives? Explain the role of food additives. 4
(b) What is the basic structural difference between starch and cellulose? 3
(c) Draw the ring structure of glucose and fructose. 2
9. (a) Show the formation of the disaccharide maltose from 2 glucose molecules. 3
(b) Explain the relation between water activity and moisture content. 2
(c) What is non-enzymatic browning? Why maillard reaction is important in foods? 4
10. (a) What are simple lipids? Give examples. 2
(b) What are carotenoids and what are their functions? 4
(c) Explain the consequences of caramelization. 3